

1                   IN THE UNITED STATES DISTRICT COURT FOR THE  
2                                   NORTHERN DISTRICT OF OKLAHOMA  
3  
4

5       W. A. DREW EDMONDSON, in his )  
6       capacity as ATTORNEY GENERAL )  
7       OF THE STATE OF OKLAHOMA and )  
8       OKLAHOMA SECRETARY OF THE )  
9       ENVIRONMENT C. MILES TOLBERT,) )  
10      in his capacity as the )  
11      TRUSTEE FOR NATURAL RESOURCES) )  
12      FOR THE STATE OF OKLAHOMA, )  
13   )

14                               Plaintiff, )  
15   )

16      vs. )

17   ) 4:05-CV-00329-TCK-SAJ  
18   )

19      TYSON FOODS, INC., et al, )  
20   )

21                               Defendants. )  
22   )

23       - - - - -  
24                               THE VIDEOTAPED DEPOSITION OF  
25      ROGER OLSEN, PhD, produced as a witness on behalf  
26      of the Defendants in the above styled and numbered  
27      cause, taken on the 2nd day of February, 2008, in  
28      the City of Tulsa, County of Tulsa, State of  
29      Oklahoma, before me, Lisa A. Steinmeyer, a Certified  
30      Shorthand Reporter, duly certified under and by  
31      virtue of the laws of the State of Oklahoma.

A P P E A R A N C E S

FOR THE PLAINTIFFS:

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-and-  
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FOR GEORGE'S:                      Mr. James Graves  
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FOR CAL-MAINE:                      Mr. Robert Sanders  
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FOR WILLOW BROOK:                      Ms. Jennifer Griffin  
   Attorney at Law  
   314 East High Street  
   Jefferson City, MO 65109  
   (Via phone)

1 VIDEOGRAPHER: Thank you. The witness may  
2 be sworn.

3 ROGER OLSEN, PhD,  
4 having first been duly sworn to testify the truth,  
5 the whole truth and nothing but the truth, testified  
6 as follows:

7 DIRECT EXAMINATION

8 BY MR. GEORGE:

9 Q Mr. Olsen, state your full name for the  
10 Record, please. 09:04AM

11 A Roger Lee Olsen.

12 Q Could I have a business address?

13 A It's 1331 17th Street, Suite 1200, Denver,  
14 Colorado 80202.

15 MR. PAGE: Robert, do we have an agreement 09:04AM  
16 to reserve objections except as to form?

17 MR. GEORGE: We do.

18 MR. PAGE: Thank you.

19 Q Mr. Olsen, you've been retained in this case  
20 to testify on behalf of the Oklahoma Attorney 09:04AM  
21 General; is that correct?

22 A That's correct.

23 Q Can you state, sir, to a reasonable degree of  
24 scientific certainty that Oklahoma's water quality  
25 standards for bacteria in all streams and rivers in 09:04AM

1 the Illinois River watershed will be met in 2008 and  
2 2009 if the court enters the injunction your client  
3 is requesting?

4 **A** No, I cannot state that in that scenario, that  
5 Chris Teaf has been looking at more than I have. 09:05AM

6 **Q** You can't offer that opinion; correct?

7 **A** No.

8 **Q** Okay. Sir, can you state to a reasonable  
9 degree of scientific certainty that groundwater  
10 wells used for drinking water by Oklahoma residents 09:05AM  
11 in the Illinois River watershed will be free from  
12 fecal coliform bacteria in 2008 and 2009 if the  
13 court enters the injunction your client is  
14 requesting?

15 **A** No. 09:05AM

16 **Q** When were you retained, sir?

17 **A** November 2004.

18 **Q** Who retained you?

19 **A** The State of Oklahoma through the Oklahoma  
20 Attorney General. 09:05AM

21 **Q** Did someone from the Oklahoma Attorney  
22 General's Office make the first contact with you or  
23 were you contacted through outside counsel?

24 **A** I was contacted through outside counsel.

25 **Q** In particular who? 09:05AM

1 MR. GEORGE: Your objection is noted.

2 Q Dr. Olsen, can you identify a specific  
3 location where poultry litter originating from a  
4 farm under contract with one of my clients has been  
5 identified and traced as the source of a specific  
6 area of contamination in the streams, groundwater or  
7 rivers in the Illinois River watershed?

09:10AM

8 MR. PAGE: Object to the form.

9 A Again, I believe you are a large source of  
10 contamination. We've identified your contamination  
11 in the environment. I could go back, I'm pretty  
12 confident, and identify specific locations where you  
13 are the major contributor. I have not done that to  
14 date.

09:10AM

15 Q As we sit here today, sir, you cannot identify  
16 for me a specific source -- I'm sorry, a specific  
17 place of contamination in terms of stream water,  
18 groundwater or river water which you can source to a  
19 reasonable degree of scientific certainty to a  
20 particular land application site involving poultry  
21 litter originating under -- from a farm under  
22 contract with one of my clients; is that correct?

09:10AM

09:10AM

23 MR. PAGE: Object to the form.

24 A If you give me a few minutes, I probably  
25 could. At this very moment, which was your

09:10AM

1 question, I cannot and I don't have that in mind,  
2 but given a few minutes, I could definitely do that  
3 to a reasonably degree of scientific certainty.

4 Q Dr. Olsen, if I asked you that same question  
5 on behalf of the other individual named defendants  
6 in this case, would your answer be the same?

09:11AM

7 A Yes.

8 Q Okay. Now, you said if given some time, that  
9 you thought you could do that. Tell me how you  
10 would go about doing that.

09:11AM

11 A Well, as you know, we have sampled over 500  
12 locations in the streams, and those include the edge  
13 of fields. Again, we have, as I understand it from  
14 Dr. Fisher, definitive evidence of runoff from  
15 fields where Tyson waste has been applied. We would  
16 then look at where that water goes, and our sampling  
17 points immediately downgradient of that, look for  
18 the signature of chicken waste, particularly your  
19 waste in that sample, see if there's any other  
20 sources and be able to identify runoff from your  
21 field into the surface water. Likewise, we have a  
22 variety of geoprobes. We would look at -- if we  
23 have any geoprobes downgradient from fields where  
24 Tyson waste has been applied, we would look in those  
25 geoprobes, and --

09:11AM

09:11AM

09:12AM

1           On the solid sides, we -- there's a couple  
2       other components. We did both sediments in the  
3       river and sediments in Tenkiller. So there's water  
4       compartments and then there's sediments compartment.  
5       I think I described each of the components in how  
6       the waste from the house ends up on the field, runs  
7       off, goes into groundwater, eventually into  
8       Tenkiller.

09:28AM

9       **Q**       Okay. Thank you for the explanation. Now,  
10      let me go back to the affidavit and see if I  
11      understand what you meant by this language, okay,  
12      and if I don't, tell me. When you were talking in  
13      your affidavit about showing a direct path from the  
14      place of poultry waste disposal to locations in the  
15      IRW where contamination is found, you were referring  
16      to the various compartments that you had studied and  
17      the fact that the chemical signature that you've  
18      identified is found in each of those compartments;  
19      is that right?

09:28AM

09:28AM

20      **A**       That's correct.

09:28AM

21      **Q**       Okay. So you were not, sir, claiming to have  
22      identified a particular land application site and  
23      then traced geographically edge of field runoff from  
24      that site to a specific place of contamination;  
25      correct?

09:29AM



1     **A**       No, I was not asked to do that. We tracked  
2     the chicken waste, chemical components and signature  
3     throughout the basin.

4     **Q**       Okay. So the exercise that I was proposing  
5     with Exhibit No. 2, the map, you would not be in a  
6     position, would you, sir, today, to put an X where  
7     poultry litter has been applied and then draw a line  
8     that shows me how that litter application  
9     contributed to contamination in a particular place?

09:29AM

10           MR. PAGE: Object to the form.

09:29AM

11     **Q**       Could you do that?

12     **A**       I know -- again, like I say, the waste  
13     compartments, where the waste has been applied, we  
14     don't know where all the waste has been applied but  
15     it's pervasive, applied across the basin. Dr.

09:29AM

16     Fisher knows that for sure. I know there's more in  
17     Arkansas than Oklahoma. So I would create a big box  
18     here for soil applications. I know that, you know,  
19     80 percent of the river shows the signature. So I

20     could draw circles around 80 percent of the river  
21     system, and that's what I would do. I know that the  
22     lake, you know, 90 percent of those samples show the  
23     waste signature, so I'd draw a whole circle around  
24     that, and then I would link up all those  
25     compartments. I'd take, you know, where I've drawn

09:30AM

09:30AM

1 the circle from the waste into the river and I'd  
2 draw an arrow down, you know, all the rivers and  
3 into the lake. So I could do that, but I don't  
4 think it's going to tell you what you want.

5 Q Well, I don't think it is, and let's just make 09:30AM  
6 sure our Record is clear, sir. You cannot identify  
7 for me a particular location where poultry litter  
8 has been applied and then link that through a direct  
9 pathway to a particular location where contamination  
10 exists; correct? 09:30AM

11 MR. PAGE: Object to the form.

12 A I think we've already discussed that, and I  
13 already said that if given enough time, I could  
14 trace contamination from a field downgradient and  
15 then it ultimately would mix with other poultry 09:30AM  
16 contamination and ultimately gets to the reservoir.

17 Q Okay, but that's not what you have done to  
18 date; correct?

19 A No, I've not done that to date.

20 Q And that's not what you meant by the language 09:31AM  
21 of a direct path in Paragraph 4 of your affidavit;  
22 correct?

23 A No. It stands like I explained already.

24 Q You did not mean that you had done that field  
25 level analysis to trace a particular field to a 09:31AM

1 wastewater treatment was a significant component of  
2 a sample that we had taken, I see it. It's a  
3 distinct signature. The chicken and the wastewater  
4 treatment plants are a distinct signature.

5 Sometimes we have both of them, and I can tell what  
6 samples with have in both of them, and I can tell  
7 relatively which one is more predominant than the  
8 other one.

11:52AM

9 Q Why did you not just take effluent samples  
10 from POTWs and analyze it for the same list of  
11 parameters that you used in your chicken litter  
12 signature?

11:52AM

13 A Well, we probably will do that, but right now  
14 I have hundreds of samples that have some influence  
15 that are downgradient of wastewater treatment plants  
16 that create a unique signature in the environment  
17 for me. I mean this is what PCA is all about. If a  
18 waste is prevalent in the basin and has a unique  
19 chemical composition, you'll see the signature of  
20 it, and we see wastewater and we see chicken.

11:52AM

11:52AM

21 Chicken is by far the most prevalent signature, but  
22 we see when there's wastewater in it that are  
23 distinct.

24 Q Dr. Olsen, are you aware of a single piece of  
25 peer reviewed literature or a single regulatory

11:53AM

1 conducted investigation that has found the same  
2 chemical signature for poultry waste that you claim  
3 to have found in the Illinois River watershed?

4 **A** That signature is unique. No one has ever  
5 done that extensive list analysis to do this; 11:53AM

6 however, I base the selection of chemicals on what  
7 was in the literature. So it will -- those  
8 chemicals that I see in that signature match what's  
9 in the literature, but there's no one that's ever  
10 done a complete chemical signature that I know of 11:53AM  
11 that's published in -- someone may have done it. I  
12 don't know.

13 **Q** Are you aware of a single other scientist in  
14 the world who claims to have identified this list of  
15 25 constituents and the coefficients that you've 11:53AM  
16 developed and called that a signature for chicken  
17 litter influencing water?

18 **A** I'm not aware of any.

19 **Q** You're the first person in the history of the  
20 world to have done that; is that true? 11:54AM

21 **A** Yeah, but I'm not the first person in the  
22 world to have created chemical signatures for  
23 contamination sources in rivers. That's in the  
24 literature. It's done routinely, and it's done for  
25 an extensive list of parameters, and that's why I 11:54AM

1 have such an extensive list of parameters, because  
2 it will create a unique signature.

3 Q Dr. Olsen, how long have scientists and  
4 governmental bodies been studying the potential  
5 impact of poultry litter on water quality in the 11:54AM  
6 United States?

7 MR. PAGE: Object to the form.

8 A I don't know the exact data. I'd have to go  
9 back and look at some of the literature sources.

10 Q You'll agree that work has been ongoing for at 11:54AM  
11 least decades?

12 MR. PAGE: Object to the form.

13 A I think it just most recently -- I don't know  
14 if it's been going on for decades, I can't determine  
15 that, but it's certainly got much more scrutiny in 11:54AM  
16 the last few years.

17 Q And during all the length of that study by  
18 scientists from other firms and government  
19 regulators, no one other than yourself has  
20 identified this 25 list of parameters in certain 11:55AM  
21 concentrations as a chemical signature for poultry  
22 litter; is that true?

23 MR. PAGE: Object to the form.

24 A That's my unique work to develop that  
25 signature, just like no one's ever developed a qPCR 11:55AM

1 for chicken, but we did it, and we did a signature,  
2 too.

3 Q Would the same be true with respect to the  
4 signatures that you believe you've identified for  
5 POTWs and cattle; no one else in the world has  
6 developed the list of parameters that you believe is  
7 distinct and unique for those sources of  
8 contamination despite all the years of work on water  
9 quality in the United States?

11:55AM

10 MR. PAGE: Object to the form.

11:55AM

11 A People have done the same thing for  
12 wastewater, and that's where I got some of my  
13 analysis, from one of the professors. I'd have to  
14 look to see what parameters he looked at and which  
15 ones he used in his analysis to determine whether --  
16 he didn't do all 25 like I did, though, you know,  
17 but he used the same overriding principles to  
18 develop --

11:56AM

19 Q Who is he?

20 MR. PAGE: Would you let the witness answer  
21 the question, please?

11:56AM

22 Q I'm sorry, Mr. Olsen.

23 A Dr. Furman (sic) at Furman University.

24 MR. ELROD: Dr. Furman at Furman  
25 University?

11:56AM

1 good.

2 Q None of the constituents that you use in your  
3 signature for poultry waste are only found in  
4 poultry waste; correct?

5 A No, that's right. 04:12PM

6 Q Okay. Now, you say that it's the combination  
7 that gives you this distinct signature that you see  
8 here. Were you referring to something distinct in  
9 terms of the signature in Exhibit 22?

10 A That combination right there is unique and 04:13PM  
11 distinct.

12 Q Okay. How is it --

13 A Among other things.

14 Q And I'm not trying to be dense at all, Mr.  
15 Olsen, but I don't understand how you look at this 04:13PM  
16 chart and say it is or it is not a signature of  
17 whatever you're studying. So help me understand how  
18 you go from this visual image to your opinion that  
19 there is something distinct and unique in this  
20 dataset under this analysis that reflects a 04:13PM  
21 signature of a particular source.

22 A There's other steps here. You just pulled out  
23 the first, one of the first steps we do.

24 Q I'm sorry. How would you use this chart in  
25 your -- in forming your opinion? 04:13PM